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The specific surface area in snow profiles

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The specific surface area (SSA) of snow is of great importance to snow metamorphism and chemical processes. SSA is also equivalent to the optically equivalent grain size, and by this property to radiative properties of electromagnetic waves. A recently developed method (Matzl & Schneebeli, Measuring specific surface area of snow by near-infrared photography, J. Glac. 52(179), 558 – 564, 2006) enables to measure the two-dimensional spatial distribution of SSA in snow profiles. Here we present different profiles acquired during several years (from the Swiss Alps, Greenland and Alaska), with different features showing the effect of climate and sedimentation on SSA.